

How wild animals prepare for cold weather

Winterizing

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IN AUTUMN, the leaves of trees and shrubs turn endless shades of orange, gold and red. Aware of the impending cold and lean times of winter, people spend much of their time getting ready. We harvest vegetables and fruits from our gardens to store and use during the winter, shop for warm winter clothes and fatten up by feasting on holiday fare.

During the fall, many animals are busy doing the same things we're doing. To prepare for winter, some animals fatten up, some change to winter dress and others gather and store foods to feed on in the comfort of their warm winter homes.

Stocking the pantry

If you hike in a mountainous alpine region in the fall, you may see a pika preparing for winter. During the warmer months before winter, pikas spend much of their time harvesting and

drying grasses and forbs from meadows surrounding their rocky, talus homes. Collected plants are stacked like tiny hay piles atop boulders near their dens to dry in the sun. Each day the pikas add a bit more vegetation. Some piles can reach two feet in height. After the plants have dried, the pikas store them in spaces under the rocks near their den. When a thick blanket of snow later cov-

ers their rocky home, the pikas just head to their *pantry* to grab a bite to eat.

Beavers are another animal that spend the fall storing food for use in the winter. During the fall, beavers use their chisel-like teeth to cut down aspen, willows and other trees. They cut off bark-covered branches and drag them to the bottom of their pond, where the branches are pushed into the mud to hold them in place. In the winter, the beavers bring the branches into their den and gnaw off the nutritious layers of bark.

Beavers also create special floating structures to store branches for the winter. These floating structures are created by weaving together a raft of less palatable branches. Then they tuck edible branches into the underside of the raft. When the top of the pond freezes over, the raft becomes frozen in place, but the branches stuck in the bottom of the raft can be pulled free.

In the fall, Clark's nutcrackers also are very busy gathering and storing food for the winter. During the fall, they will store more than 20,000 seeds from the cones of various pine trees. If you're in the mountains in the fall, you can see many of these hoarders burying seeds in the ground. Carrying the seeds in a specialized pouch under their tongues, they



Pikas spend much of their time harvesting and storing winter food.

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Clark's nutcrackers collect thousands of pine cone seeds for winter storage.

store the seeds on high, exposed ridges that receive sunlight and where winter snows don't accumulate as much. Storing the seeds on these ridges allows the nutcrackers to access them easily in the winter. Nutcrackers don't want to waste time caching seeds that may go bad, so they visually inspect the seeds they gather and toss out any that look rancid.

Squirrels and chipmunks are masters at collecting and storing foods, stuffing their cheeks full and then hiding their winter food supply in safe places. Red squirrels hoard complete cones, which they store in huge piles called "middens." Anyone who has walked through a forest in Utah has probably seen a midden—a noticeable hump of cone scales piled near the base of a pine

tree. Inside these caches are a network of storage chambers and tunnels where squirrels store their bounty. In a good year, it's estimated a red squirrel can store up to 16,000 cones.

Red squirrels also gather mushrooms for use in the winter. To resist decay, the mushrooms must be dried out before they can be added to the squirrel's winter storeroom. Squirrels dry mushrooms by placing them in hollow cavities in trees, laying them on top of old bird nests or spreading them along the tops of larger branches.

The fatter the better

Although black bears always have voracious appetites, they are especially intent on feeding in the fall. This is

because the amount of fat they accumulate is the main factor in whether or not they will survive the winter.

During the fall, black bears can actively feed for 20 hours a day, ingesting as much as 20,000 calories. They feast heavily on summer berries, such as serviceberries and chokecherries, as well as acorns and pine nuts. By the end of the fall, a typical black bear will have doubled its body weight and added three to four inches of fat.

As fall progresses and food grows scarce, black bears start searching for potential den sites such as caves, hollow caverns in or under trees, or spaces under rocks or holes that have been dug into a hillside. By early October, some bears have already entered their dens where they will stay for five or six months, burning off a thick layer of fat that helps keep them warm. Black bears live off their layers of fat during the winter, but they don't actually hibernate.

Fat accumulation is also extremely important to animals such as marmots and ground squirrels, both of which are true hibernators that dramatically decrease their metabolic activity during the winter. The body fat they put on during the fall is slowly used up as they hibernate for weeks or even months until the weather warms and food becomes available again.

Fall is the time other animals seek out winter homes too. Frogs (like many cold-blooded amphibians and reptiles that overwinter in a state similar to hibernation called "torpor") head to ponds or moist areas and prepare to bury themselves in the mud. Salamanders search out moist, rotting logs they can creep beneath; tortoises dig long, deep tunnels into sandy hillsides; and some snakes take shelter together in communal dens below the frost line.

In the fall, insects that don't migrate, such as wasps, beetles, butterflies and some bees, are busy seeking suitable places to hole up when it gets cold. Some find places to burrow into

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the soil while others look for rotting vegetation or bark to crawl under, or crevices in trees or sides of houses to squeeze into. The slowed-down state these insects experience when winter arrives is called diapause.

Grasshoppers don't hang around for the cold. Instead, they lay eggs in the ground that can survive the winter. Galls (swollen layers of tissue that form on some shrubs) are actually protective winter homes for pupae or cocoons of various insects.

During the fall, brine shrimp in the Great Salt Lake also are producing billions of cysts that are able to endure winter's cold, ensuring the continuation of their kind.

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Dressing in layers

Just as you wear layers and put on a heavier coat during the winter, so do many animals including deer, elk, foxes, coyotes, bobcats, porcupines, raccoons, skunks, weasels and hares. To brave winter's frigid temperatures, not only do these mammals grow extra thick,

furry undercoats, many of them also wear a layer of outer fur made up of hollow hairs. The core of each outer hair is about 80 percent air space. The air spaces inside these hairs, along with air spaces created when the animal fluffs its fur, help the animal retain body heat.

Deer can grow winter coats as much as four times thicker than their summer coats. Birds that stick around for winter are

insulated by jackets of downy feathers. They often look quite plump as they fluff these feathers to hold more air next to their bodies.

In addition to growing a thicker coat in fall, some animals also change the color of their coat. The brownish feathers of ptarmigans that live above



Red squirrels, like this one, prepare and store huge amounts of winter food in big piles called "middens."



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PHOTO BY RON STEWART

Deer and elk prepare for winter's cold temperatures by growing thick coats of fur to help retain body heat.

treeline are replaced by snowy white feathers that offer effective camouflage when winter snows blanket their high-elevation realm.

In the winter, long-tailed weasels and snowshoe hares also exchange their brown-colored coats for coats of white. This changing of coats, which can take a few weeks or a few months depending on the animal, usually begins in September or October. Scientists have learned that it isn't temperature change that causes these animals to change their coats, but a change in the length of days during the fall. Color change is controlled by two glands near the brain, the pineal gland and the pituitary gland. The pineal gland acts as a light receptor. In response to changes in the amount of light received, the pineal gland releases certain amounts

of a hormone. This hormone in turn affects the pituitary gland, which regulates the production of melanin, a dark pigment that provides color to cells that make up skin, hair, fur and feathers. As light decreases with shorter fall days, less melanin is produced and coats change from brown to white.

As you make your preparations for winter this year, take a moment to think about the wildlife around you and what they're doing to get ready for winter. Or, better yet, take some time to get outside and see wildlife's incredible transformations for yourself. You might be surprised by how much we have in common.

Getting WILD!

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